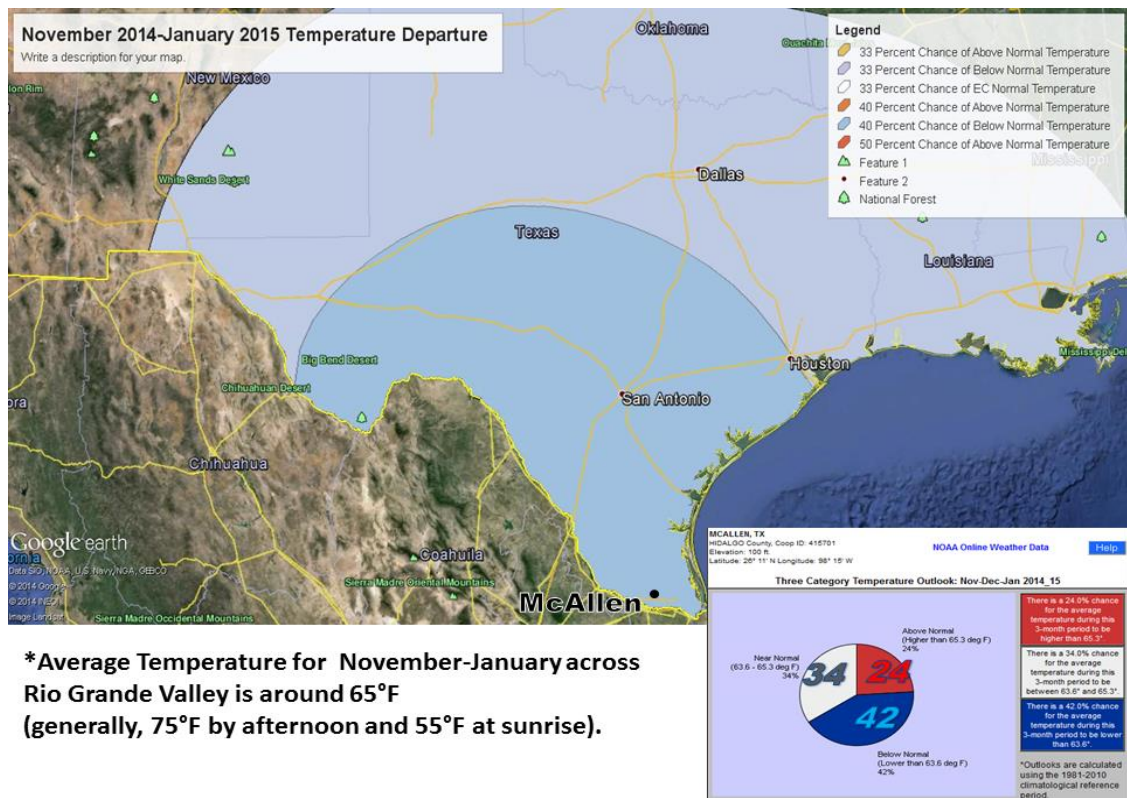
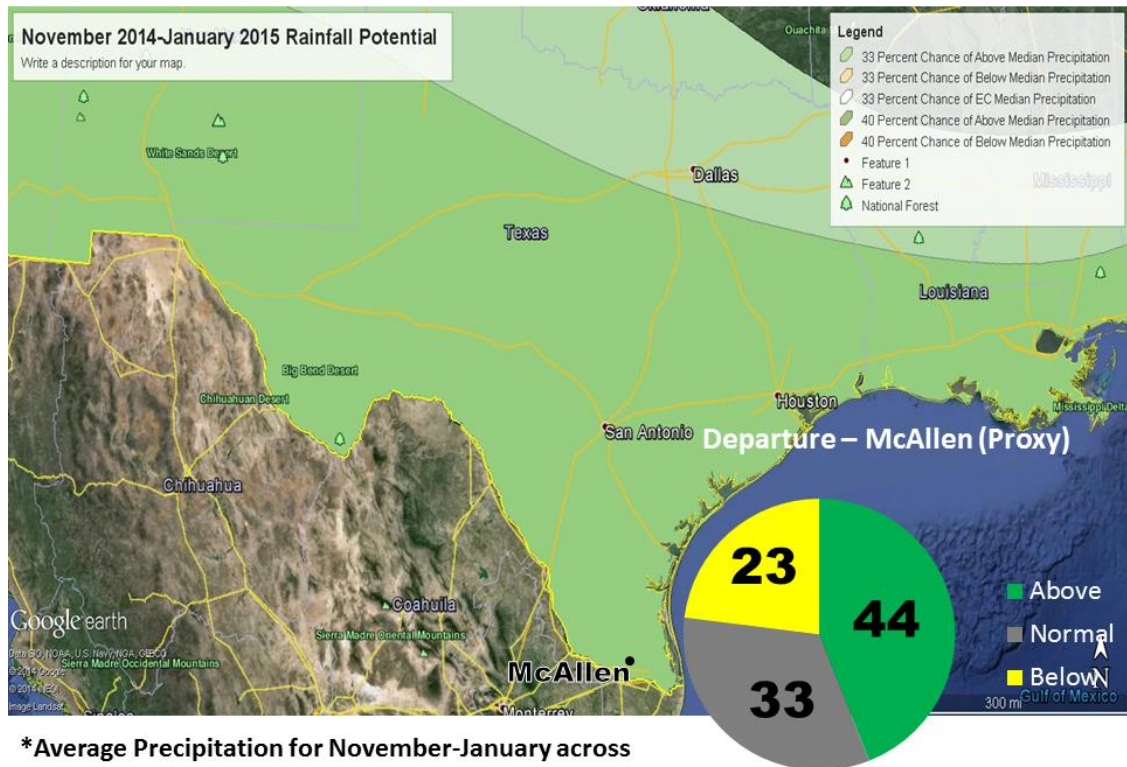


November 2014-January 2015 Outlook



Turning Cool, Getting Wet?
Likelihood for Weak El Niño Brings Hope for More Rain

October 2014 returned dry, but still warm, weather to most of the Rio Grande Valley and Deep South Texas. Save for a period of locally heavy rains in the Lower Valley [between October 18 and 22](#), the weather was non-descript from a hazards point of view, but perfect for frequent trips to the beach or elsewhere to enjoy the moderated temperatures, lighter winds, and modest humidity.

As autumn 2014 turns to winter 2015, the questions remained: Is more rain coming? Will there be frequent cold snaps? What about a deep freeze or another White Christmas? We try to answer them here.

El Niño: How Much Impact?

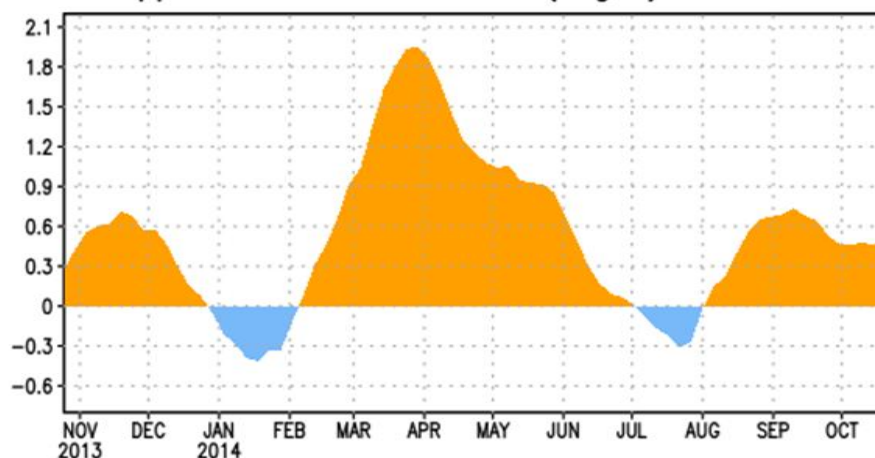
After a summertime “hiccup” due to a dip in upper oceanic heat content across the east central Pacific, warmer than average conditions resumed through September and October (right top). A redevelopment of a positive phase Kelvin Wave, after some late summer teetering, has increased confidence that at least a weak El Niño is on the way to close out 2014 (right, middle). The presence of El Niño during the end of autumn and first half of winter (into January) favors the opportunity for above average rainfall and slightly below average temperature, as shown in these [charts \(second to leftmost bar\) for Brownsville, Harlingen, and McAllen](#). El Niño alone does *not* guarantee a wet late autumn/mid-winter. Between November 1997 and January 1998, the spigot shut off after a wet October; barely more than an inch fell from November through January, nearly one-fourth the average of nearly 4 inches for that period (top left of next page). During this time, El Niño was at full steam, well into the “strong” category (Oceanic Niño Index above 2).

The consensus of El Niño forecasts from late 2014 into early 2015 stronger suggest a weak event (next page, right), with 3-month index values between 0.5 and 0.9. The weak signal, combined with early season (November) uncertainty regarding rainfall and temperature, present challenges for the entire seasonal forecast. Other short term atmospheric puzzle pieces, such as trends in the [Arctic Oscillation](#) and [North Atlantic Oscillation](#), as well as the phase of the [Pacific Decadal Oscillation](#), will have prominence in describing how individual winter weather events, particularly in December and January, will develop.

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Bottom line? We remain hopeful for more welcome rainfall that can continue to replenish RGV soil moisture deficits, but confidence for a wet vs. “normal” – or even dry – November to January period is only slightly better than 50/50.

EQ. Upper–Ocean Heat Anoms. (deg C) for 180–100W



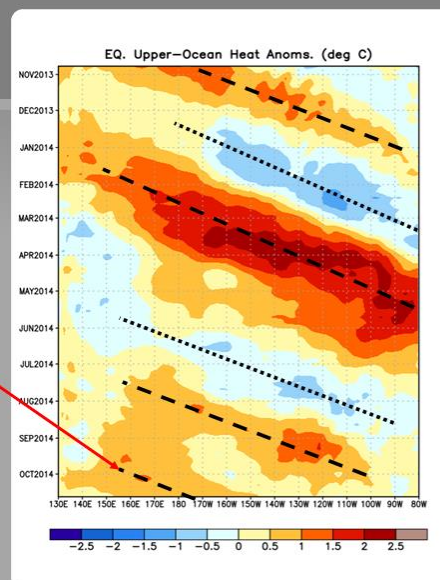
Weekly Heat Content Evolution in the Equatorial Pacific

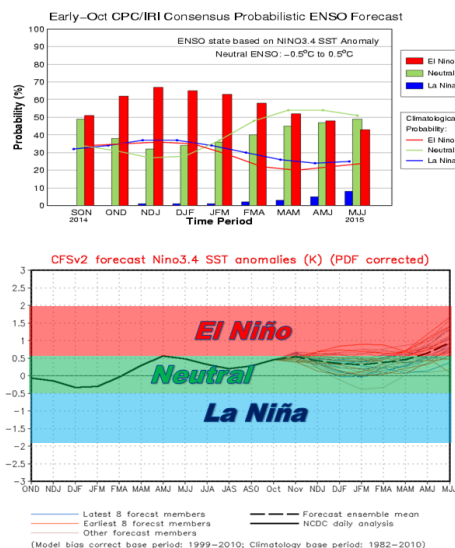
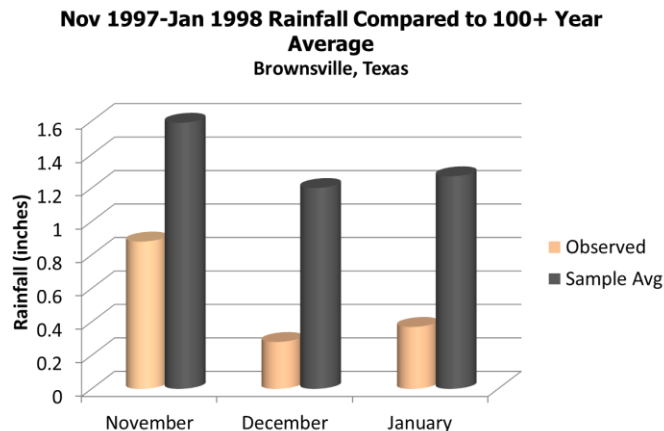
During January - May 2014, the downwelling phase of a strong Kelvin wave crossed the Pacific.

During May-July, positive temperature anomalies progressively disappeared from the equatorial Pacific in response to the upwelling phase of the Kelvin wave.

Since early October, subsurface temperature anomalies have expanded eastward.

Oceanic Kelvin waves have alternating warm and cold phases. The warm phase is indicated by dashed lines. Down-welling and warming occur in the leading portion of a Kelvin wave, and up-welling and cooling occur in the trailing portion.





Above: Left – Observed rainfall at Brownsville during peak of the strong El Niño of 1997/98, which was well below average, from November through January. Right – Top: Forecast confidence in development of El Niño during late autumn/winter 2014/15 (60-65 percent probability); Bottom: Climate Forecast System model forecast (dashed line) and ensemble members (red lines) for ENSO through spring 2015. Note how the dashed line “hugs” the neutral (green) and El Niño (red) areas from the NDJ (Nov. - Jan.) to the MAM (March-May) period.

The Future on Freezes?

Typically, there are several mornings where temperatures edge to or below freezing (0°C, or 32°F) in winter, with the majority of these dates from late December through the end of January. Across the ranchlands from the King Ranch (Kenedy/Brooks) west to Zapata, and including northern Hidalgo and Starr County, 6 to 9 late nights/early mornings dip to freezing or below; for the more populated Rio Grande Valley (mainly along and surrounding US 83 and US 77), the range is 2 to 5 days. Across the ranchlands, generally 75 to 90 percent of late autumns through the end of January have seen at least one day with 32°F; for the more populated Rio Grande Valley, the percentage is lower, generally 50 to 75 percent. Given the lack of indicators suggesting a persistently warm late autumn through winter with dominant wind flow from the south or southeast, but some indicators for periods of enhanced wind flow from the north, expect to see a few freezes, especially from mid-December through the end of January.

How much impact December 2014/January 2015 will freezes have on the region? The answer remains to be seen. The forecast weak El Niño, combined with (thus far) poor indicators on future puzzle pieces, such as enhanced sub-arctic snow pack from Canada through Siberia which could assist in a persistent negative phase of the Arctic or North Atlantic Oscillation (that has brought frigid air deep into Texas in past years), suggest the possibility of a **killing freeze**, similar to those that wiped out crops and trees around Christmas 1983 and 1989, is slim to none. However, the potential for a **hard freeze** (or two) – defined as 2 or more hours of temperatures 27 degrees or colder at the level of the plant or tree – does exist. September rainfall, combined with additional expected rains, particularly in December, would continue modest growth of all crops and plants and increase vulnerability to more widespread damage. Tender tropical plants, cash crops (such as sugar cane and citrus fruit), and ornamental tropical palm trees (such as royal or coconut varieties) could be at risk from more than one hard freeze.

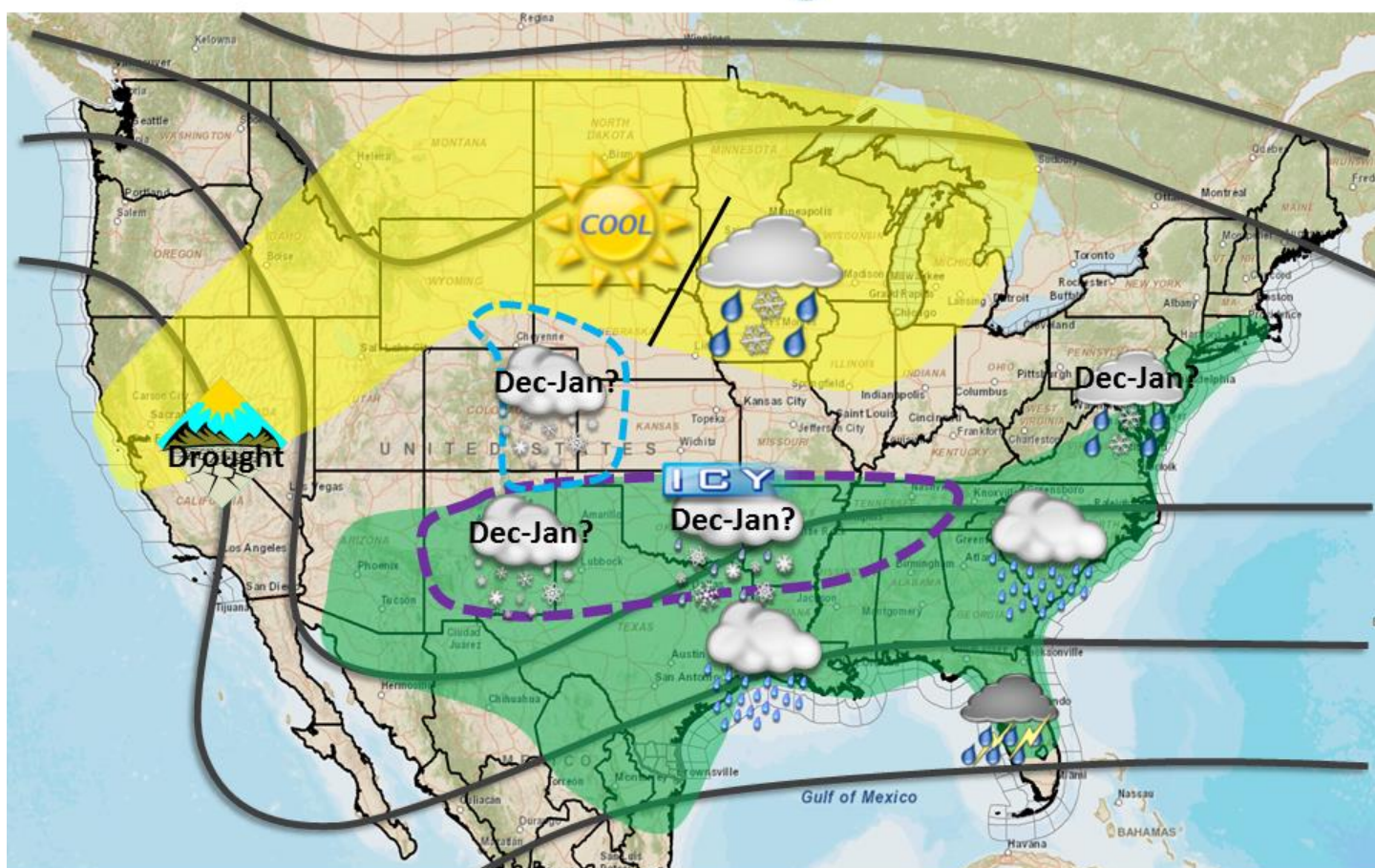
Preparedness is critical. If you own tender/ornamental plants or farm crops and other vegetation that could be at risk, November is the time to stock up on supplies that can reduce risk from freeze damage. Special covers can be purchased to protect tender vegetation from freeze or frost damage. Irrigation systems that can provide an insulating coat of water in very cold but low wind conditions should be checked for working order. Residents with tender plants and flowers might consider potting them for quick movement indoors, should freeze warnings be issued in December or January.

Ready for Sharp Changes?

The Rio Grande Valley is known for “Gray ‘Northerners” – fronts that are shallow (only near the surface) but contain a source of Canadian air that can change summer to winter in a matter of hours when sunshine and

balmy breezes from the south are erased by brisk winds from the north, slate gray skies, and light rain or drizzle. Nearly every November-January sees a few such events; “feels like” temperatures can be easily 40 degrees lower from one day to the next. In 2013/2014, Gray ‘Northers were a frequent and unwelcome guest; on **seven** occasions, [actual temperatures fell 35°F or more between 2 PM and 2 PM](#) on successive days. The number was far and above any in the 21st Century (most years at 1 or 2 such cases), and is highly unlikely to repeat. However, a few 25-30°F successive day drops are common, and when combined with wind, make it feel up to 40°F colder. Be sure to have the heavier winter weight clothes – sweaters, jackets, hoodies, boots – close by, and be ready to take them with you especially if a Gray ‘Nother arrives in the middle of the day.

November 2014-January 2015 Pattern?



Note: Confidence is *low to very low* on this, or any, particular mean (average) pattern.

Pattern Matters

Some years, such as when we headed boldly into [La Niña in late 2010 into 2011](#) and other predictors clearly indicated a dry, warm period with an increased threat for drought and wildfire, are predictable with a high degree of confidence, and the [eventual data bear out](#) the successful forecast. The November 2014-January 2015 late autumn through mid-winter forecast is not one of them. The map above is broadly based on developing trends in the short, medium, and long term and supported by a consensus of seasonal models and prior analogues. The important words are *broadly based*. A struggling El Niño, fluctuating and “near zero” anomalies on atmospheric teleconnections (AO/NAO, PNA, PDO, etc.), and even the recent “flip flop” from the 2014 “[Wet-Tember](#)” to a warm and generally dry October make confidence in any particular pattern low to very low. Thus, take the above US pattern/outcome map with several grains of salt, but feel free to use for general travel and other planning, especially as we head through the heart of the winter holiday season and into the first month of 2015.